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IN THE

Supreme Court of the United States

OCTOBER TERM 1987

FONAR CORPORATION and DR. RAYMOND DAMADIAN,

Petitioners,

—vs.—

JOHNSON & JOHNSON and TECHNICARE CORPORATION,

Respondents,

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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QUESTIONS PRESENTED

Where, after a 23-day trial of an action for infringement of a patent involving a dramatically new method for detecting cancer in the human body, the jury brought in a verdict of infringement for Petitioners:

(1) Did the courts below deny or impair the Petitioners' constitutional rights to trial by jury and protection of patents where the District Court considered unfavorable contradicted testimony in granting Respondents' Rule 50(b) motion for judgment notwithstanding the verdict, and the Federal Circuit affirmed?

(2) Should this Court resolve a conflict among the Circuits, and between the Circuits and this Court's decision in *Wilkerson v. McCarthy*, 336 U.S. 53 (1949), concerning the proper constitutional standard to be applied in re-examining facts tried and determined by a jury?

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Other Authorities:

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U.S. Const., Art. 1, Sec. 8 2

Rule 50, Federal Rules of Civil Procedure ..... *passim*

Kleinfield, A Machine Called Indomitable, Times Book, New York, 1985 6

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FONAR CORPORATION and DR. RAYMOND DAMADIAN,

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—VS.—

JOHNSON & JOHNSON and TECHNICARE CORPORATION,

Respondents,

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Fonar Corporation and Dr. Raymond Damadian petition for a Writ of Certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit.*

OPINIONS BELOW

The opinion of the United States Court of Appeals for the Federal Circuit is reported at 821 F.2d 627 (1987), and is set out in the Appendix, *infra*, pp. 1a-13a. The opinion of the United States District Court for the District of Massachusetts, granting Respondents' motion for judgment NOV, is reported at 630 F. Supp. 581 (1986), and is set out in the Appendix, *infra*, at pp. 14a-30a.

* Subsidiaries and affiliates of Fonar Corporation are AMD Corporation and Fonar Industrial, Inc.

JURISDICTION

The judgment of the United States Court of Appeals for the Federal Circuit sought to be reviewed is dated and was entered on June 16, 1987. A timely Petition for Rehearing was denied on August 20, 1987. The jurisdiction of this court rests on 28 U.S.C. § 1254(1).

CONSTITUTIONAL PROVISIONS INVOLVED

Seventh Amendment

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise reexamined in any Court of the United States, other than according to the rules of the common law.

Art. 1, Section 8

The Congress shall have power . . . to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive right to their respective Writings and Discoveries.

RULE INVOLVED

Rule 50(b), Federal Rules of Civil Procedure

Motion for Judgment Notwithstanding the Verdict. Whenever a motion for a directed verdict made at the close of all the evidence is denied or for any reason is not granted, the court is deemed to have submitted the action to the jury subject to a later determination of the legal questions raised by the motion. Not later than 10 days after entry of judgment, a party who has moved for a directed verdict may move to have the verdict and any judgment entered thereon set aside and to have

judgment entered in accordance with the party's motion for a directed verdict; or if a verdict was not returned such party, within 10 days after the jury has been discharged, may move for judgment in accordance with the party's motion for a directed verdict. A motion for a new trial may be joined with this motion, or a new trial may be prayed for in the alternative. If a verdict was returned the court may allow the judgment to stand or may reopen the judgment and either order a new trial or direct the entry of judgment as if the requested verdict had been directed. If no verdict was returned, the court may direct the entry of judgment as if the requested verdict had been directed or may order a new trial.

STATEMENT OF THE CASE

The issue presented in this Petition for Certiorari is whether the lower courts violated Petitioners' constitutional rights to trial by jury and protection of patents by usurping the jury's factfinding function and unconstitutionally substituting their interpretation of the facts for the jury's.

Petitioner, Dr. Raymond Damadian, conceived of, developed and patented a revolutionary method of detecting cancer in the human body. On September 20, 1982, Petitioners sued Respondents for infringement of and inducing infringement of this patent, contending that Respondents manufactured an apparatus through which users detected cancer by practicing Petitioners' patented method. At the conclusion of a 23-day trial, the jury, in response to special verdict questions, returned a verdict against the Respondents, finding that Petitioners' claims were valid and enforceable, and that Respondents had indeed infringed and induced infringement of these claims. In granting a motion for judgment notwithstanding the verdict, and in affirming that decision, the courts below committed reversible error by unconstitutionally re-examining the facts presented to and decided by the jury.

Dr. Damadian is a medical doctor and President and Chairman of Petitioner Fonar Corporation. Dr. Damadian conceived of and developed the most important recent breakthrough in the war on cancer—a method for detecting cancer in the human body through nuclear magnetic resonance ("NMR"). Unlike x-ray, x-ray CAT scan, and nuclear medicine, NMR technology does not employ intrusive and potentially harmful radiation emissions. Instead, it measures the response of tissue to magnetic fields applied to the human body (JA. 464a-465a).[1] It also allows more sensitive and earlier detection of cancer than the other methods (JA. 401a-403a, 406a, 527a-532a).[2]

In 1974, Dr. Damadian was issued United States Patent No. 3,789,832 ("832 patent") for his method of cancer detection. Under his patented method, doctors using NMR technology subject human tissue to magnetic forces. These forces excite certain atoms in the tissue's cells, causing them to emit a measureable signal. When the magnetic force is removed, the signal fades. The length of time it takes this signal to fade—the "relaxation time"—is represented by two components, referred to as T_1 ("spin-lattice relaxation time") and T_2 ("spin-spin relaxation time").

Dr. Damadian's patent was based upon his pioneering discovery that the relaxation times of cancerous tissue differ significantly from the relaxation times of healthy tissue. Following this discovery, Dr. Damadian developed a three-step method by which this NMR data could be used in the detection of cancer which is described in claims 1 and 2 of the 832 patent: first, standard relaxation times are established for both cancerous and normal tissue. Second, relaxation times are measured for the suspect tissue. Third, the measurements for

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1 "JA _____" refers to the Joint Appendix filed below.

2 Dr. Damadian first reported this discovery to the scientific community in the March 19, 1971 issue of *Science*, a publication of the American Association for the Advancement of Science (Pl. Exh. 22; JE 28-31) ["JE" refers to the Joint Exhibit volumes filed in the court below].

the suspect tissue are compared to the standard measurements for cancerous and healthy tissue.

Claims 1 and 2 of the Damadian patent are stated as follows (JE 3,8):

> 1. A method for detecting cancer comprising
>
> a. measuring and establishing standard NMR spin-lattice relaxation times and spin-spin relaxation times for both normal and cancerous tissue of the type under analysis using as an indicator nuclei at least one nuclei which exhibits deviant behavior in cancerous tissue;
>
> b. measuring the NMR spin-lattice relaxation times and spin-spin relaxation times for the suspected tissue to determine the extent of deviant behavior of the indicator nuclei; and
>
> c. comparing the measured values obtained in (b) against the standards obtained in (a).
>
> 2. The method of claim 1, wherein the indicator nuclei are cell water protons.

As this method was initially conceived by Dr. Damadian, the standard relaxation times were to be stored as numerical values in the memory of a computer for later comparison with suspect tissue. Though the process was subsequently improved to obtain a computer-created image based on the intensity of the relaxation signals (805a-806a), the courts below accepted as proven that the computer-created images are the all but exclusive function of the relaxation times as discovered by Dr. Damadian and as propounded in his patent. As the district court observed (App., *infra*, p. 18a):

> The evidence did disclose . . . that commercial NMR scanners now in use . . . form an image by displaying NMR response signal strength (amplitude) measured for each locus (pixel) to form an image on a screen by showing contrasts among the many dots (representing pixels) on the screen (in shades from white to black or in color) . . . The signal amplitude from each locus comes

> from hydrogen protons in that locus and depends upon three factors, of which T_1 and T_2 are by far the greater contributors.

Thus, there is no dispute that the process of imaging—the translation of numerical values into a visual display—is directly dependent on the T_1 and T_2 parameters, and thus on Dr. Damadian's discoveries.

Technology based upon Dr. Damadian's research, discovery, and patented method created an entirely new industry devoted to the manufacture of equipment for its application. Fonar Corporation, as licensee of Dr. Damadian's patent, is engaged in the development, manufacture, and marketing of whole-body medical scanning equipment based on NMR technology. Respondent Johnson and Johnson, through its subsidiary, Respondent Technicare Corporation, is one of a number of companies which manufacture and sell the same type of NMR imaging equipment.

On September 20, 1982, Petitioners brought this suit in the United States District Court for the District of Massachusetts, alleging that Respondents infringed and induced infringement of the method described in claims 1 and 2, and infringement of a method allowing the human body to be scanned for disease, as described in claims 7, 8, and 10 of the 832 patent. This Petition seeks review only of questions relating to claims 1 and 2.

At the conclusion of a 23-day trial, the jury, in response to specific verdict questions, found that Respondents had infringed and induced infringement of claims 1 and 2 of the 832 patent, that claims 1 and 2 were valid and enforceable, and that Respondents did not infringe claims 7, 8, and 10.[3] The

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3 Though the jury found no infringement of claims Nos. 7, 8, and 10, there is no dispute that Dr. Damadian was the first to build a whole-body NMR scanner. The District Court referred to it as "an extraordinary achievement." App., *infra*, p. 17a. *See* Kleinfield, *A Machine Called Indomitable*, Times Books, New York, 1985, for a history of the development of Dr. Damadian's remarkable achievement. The original apparatus constructed by Dr. Damadian stands in the Smithsonian Institution.

jury's verdict was based on precise instructions given by the district court regarding both literal infringement and the doctrine of equivalents (T. 207-217).[4] The jury was instructed that, to find literal infringement, it was required to find that the "accused method embodies every step or the equivalent of every step" in the claim (T. 207). The jury was also instructed that a later improvement (*i.e.*, the imaging technique) does not avoid infringement. As the District Court instructed the jury, "[o]ne does not escape infringement of a patent by adding steps if the method still uses the steps of the patent claim" (T. 208). And the instruction on equivalents very precisely charged the jury that it should find infringement if it found that persons induced by Respondents perform "substantially the same function in substantially the same way to produce substantially the same result" as the invention set forth in Dr. Damadian's patent (T. 213). The jury so found.

Respondents moved for judgment notwithstanding the verdict, pursuant to Rule 50(b). Acknowledging that the jury was "attentive" and "serious and thoughtful in their consideration of the evidence," App., *infra*, p. 27a, the District Court nevertheless set aside the jury's verdict of infringement of claims 1 and 2.[5] Had the District Judge considered only the evidence favorable to the plaintiffs, as mandated by the Seventh Amendment, he could not have justified overturning the jury verdict. Because, instead, he reexamined and reevaluated the conflicting testimony presented at trial, he arrived at conclusions different than the jury's.

In passing on the NOV motion, the District Court referred to three different and inconsistent standards by which it examined the evidence. First, it said such a motion must be granted "when the court is convinced . . . that reasonable persons could not in light of the evidence have found the facts neces-

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4 "T. ___" refers to portions of the transcript of trial not reproduced in the Joint Appendix.

5 The court upheld the jury's finding that claims 1 and 2 were valid and enforceable. App., *infra*, p. 29a.

sary to support the jury's verdict." Second, the court said that it considered all ". . . relevant evidence" before the court, resolving "all instances of allowable differences of interpretation by reasonable persons . . . in plaintiff's favor". Third, the court said that it considered "all expert testimony offered at trial, and all other circumstances in evidence regarding the context" (App., *infra*, pp. 21a, 27a).

In deciding whether Petitioners' claims had been infringed, the District Court construed the term "measuring and establishing standard" relaxation times as used in claim 1, to mean developing a single set of values corresponding to heathly tissue, and a single set corresponding uniquely to cancerous tissue. Finding that there are overlapping values for cancerous and normal tissue, the court held that such overlap precluded the possibility of "single" standard values (App., *infra*, p. 25a):

> [T]he evidence would not support a finding that anyone has yet established any T_1 and T_2 standards for cancerous and healthy human tissues. Efforts to do so have revealed a phenomenon that T_1 and T_2 values of cancerous tissues of some types overlap significantly with T_1 and T_2 values for normal tissues of other types (and perhaps even to a substantial extent with normal tissues of the same type). There was no evidence offered at this trial to support a finding that anyone has yet been able to solve this problem of overlapping and compile standard values that could be used in detecting cancer by the method described in Claims 1 and 2.

By implication, the court found that Petitioners failed to prove infringement because Respondents' equipment[6] generates a range of images for both healthy and diseased tissue, and that users of the equipment had to compare those ranges rather than being able to make an instantaneous decision based on a reading of the imagery which would by itself establish whether the suspect tissue was or was not diseased.

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6 And all other such equipment, including Fonar's (App., *infra*, p. 22a).

The record in fact establishes that Petitioners neither asserted, nor attempted to prove that, as to claims 1 and 2, the use of the word "standard" required that the NMR responses produce absolute values for the relaxation times of either healthy or diseased tissue. To the contrary, Petitioners demonstrated at trial that the patented method is rooted in the fact that the range of relaxation times of diseased tissue are universally higher than the range of relaxation times of healthy tissue of the same type (467a, 759a).

The District Court also concluded that the term "standard" NMR measurements, as used in claims 1 and 2, could not permissibly be construed to cover the method practiced by users of Respondents' apparatus. The court stated that it becomes a "distortion of common sense meaning" when Petitioners "assert that a diagnostician is 'measuring and establishing standard' NMR relaxation times when, with accumulated experience, the diagnostician learns to draw inferences from the shapes of images observed during extensive experience, stores in personal memory those images as standards, and then compares the standards with images seen as the diagnostician examines suspected tissue for the purpose of detecting cancer" (App., *infra*, p. 25a).

However, the district court ignored—and the jury clearly was convinced by—Petitioners' substantial evidence demonstrating that, in determining whether suspect tissue is cancerous, physicians rely upon images which represent the standard range of relaxation times for both healthy and cancerous tissue of the same type for purposes of comparison; that physicians learn to recognize those standard images for healthy and cancerous tissue of the same type by reviewing many examples of NMR images of both; and in finally determining whether the suspect tissue contains an abnormality, the physicians compare—either directly by the use of a library of images, or in their own minds based upon accumulated experience—the NMR image for the suspect tissue with images which represent the standard range of relaxation times for healthy tissue and for cancerous tissue of the same type (JA. 312a-313a, 396a-398a, 467a-469a, 578a-

579a, 586a-587a, 611a). A decision is then reached depending on whether the image more closely resembles the range for healthy tissue or the range for cancerous tissue (JA. 566a-567a, 586a-587a).[7] Petitioners' evidence was undisputed that users of Respondent's apparatus employ precisely this method of cancer detection (JA. 314a-319a, 333a-337a, 364a-373a, 390a-395a, 403a-405a, 578a-579a), and therefore infringement was proved.

Both Petitioners and Respondents appealed to the Court of Appeals for the Federal Circuit. Petitioners appealed from that portion of the judgment granting judgment NOV to Respondents and sought a new trial on the issues of infringement and the validity of claims 7, 8, and 10. Respondents appealed from the jury's verdict that they had failed to establish the invalidity or unenforceability of claims 1 and 2 of the 832 patent. The Federal Circuit affirmed the judgment NOV and denied Petitioners' motion for a new trial. In light of the District Court holding that claims 1 and 2 had not been infringed, the portion

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7 Dr. Robert Lufkin, one of Petitioners' experts, was asked the method by which practitioners, using Respondents' apparatus, detect cancer (JA. 566a-567a):

> Q. Would a person in using the Technicare equipment displaying an image, for example, on the console shown in Figure 258A be measuring the spin-lattice relaxation times and the spin-spin relaxation time values as the energized nuclei return to their equilibrium state?
>
> A. That's right. The intensity values that we display and detect there are based on the spin-lattice, or T_1, relaxation time and spin-spin, or T_2, relaxation time.
>
> Q. Would a person using the . . . equipment . . . then be comparing the values obtained during that step when it's displayed with predetermined values for normal and cancerous tissue?
>
> A. Yes. In looking at the image, you look at the lesion of abnormality—or the area of abnormality and compare it in one case to immediately adjacent normal tissue of the same organ; or one more step removed in your mind, you may compare the images or even directly side by side with normal patients of the same age and same sex scanned also with NMR.

of the judgment appealed from by Respondents was vacated and its appeal was dismissed as moot.

The Federal Circuit affirmed the District Court's judgment NOV as to claims Nos. 1 and 2 in four sketchy pages of its slip opinion. It held that "Because the specification does not use the word 'standard' to mean *images stored in a doctor's memory*, it does not support Fonar's theory that 'standard' as used in claim 1 means such images and that the claims are infringed by use of such images" (App., *infra*, p. 10a). Like the District Court, the Federal Circuit disregarded testimony introduced by Petitioners, which explained that images relied upon by users of Respondents' apparatus are nothing more than simple visual renderings of the standards referred to in Petitioners' patent. This statement also inexplicably ignored the District Court's instruction to the jury, with specific reference to that imaging technique, that "infringement of a claim will not be avoided merely because the accused method include an additional step or is an improvement of the claimed invention of the patent" (T. 207-208).

The Federal Circuit did not discuss whether the District Court applied the proper standard in granting Respondents' NOV motion, but stated that, on appeal, Petitioners were required to show that there was "substantial evidence to support the jury's findings." It defined substantial evidence to mean "such relevant evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review" (App., *infra*, p. 7a). In the next paragraph of its opinion, the Court reiterated that Petitioners must draw upon "all the evidence" to persuade the Court to reinstate the verdict, not just the favorable evidence which the jury might reasonably have believed.

REASONS FOR GRANTING THE WRIT

Certiorari should be granted in this case to decide whether the courts below, in setting aside the verdict of patent infringement by the jury on a motion for judgment NOV, denied or impaired Petitioners' Seventh Amendment right to a trial by jury and misconstrued Rule 50(b), Federal Rules of Civil Procedure, thereby depriving Dr. Damadian of the exclusive right to his discovery, protected by Article 1, Section 8 of the Constitution. More specifically, certiorari should be granted to resolve a conflict among the Circuits as to the standard that is to be applied by the district courts in reviewing the evidence on a Rule 50(b) motion for judgment notwithstanding the verdict.

Ever since this Court's opinion in *Wilkerson v. McCarthy*, 336 U.S. 53 (1949), the Circuits have applied widely divergent standards in reviewing the evidence on motions for a directed verdict or for judgment NOV.[8] In *Wilkerson*, a case arising under the Federal Employer's Liability Act ("FELA"), this Court held that: "It is the established rule that in passing upon whether there is sufficient evidence to submit an issue to the jury we need look *only to the evidence and reasonable inferences which tend to support the case* of a litigant against whom a peremptory instruction has been given" (emphasis added). Because of the conflict among the Circuits, some litigants are deprived of a favorable jury verdict on the basis of a test less rigorous than that applied in other Circuits, and on a test less rigorous than demanded by the Seventh Amendment.

In light of the fundamental importance of the Constitutional right at stake, this conflict should be resolved to ensure uniform application to litigants regardless of the Circuit in which they assert their claim. Here, Petitioners were deprived

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8 The standards for granting a motion for judgment NOV are the same as those governing a motion for a directed verdict. *U.S. Industries, Inc. v. Blake Construction Co.*, 671 F.2d 539, 550 (D.C. Cir. 1982).

of a favorable jury verdict by the Federal Circuit on the basis of the least rigorous of the several standards employed by the Courts of Appeals. In other Circuits, the favorable jury verdict would not have been disturbed (or if disturbed by a trial court, reinstated on appeal). As this Court pointed out in *Beacon Theatres, Inc. v. Westover*, 359 U.S. 500, 501 (1959): "Maintenance of the jury as a fact-finding body is of such importance and occupies so firm a place in our history and jurisprudence that any seeming curtailment of the right to a jury trial should be scrutinized with the utmost care." This is especially true where the jury has already rendered a carefully considered verdict in favor of the plaintiff.

A. The Conflict in the Circuits

The application of the *Wilkerson* rule by the Courts of Appeals is in total conflict and disarray. The only consistency among the Circuits is that they follow *Wilkerson* in FELA cases. One follows *Wilkerson* in all civil cases. Three others did so in the past but do not do so now. Some consider all of the evidence favorable to the non-moving party and only uncontradicted unfavorable evidence. Some consider all of the evidence including evidence unfavorable to the non-moving party.

Among the Courts of Appeals, the Eighth Circuit alone unequivocally follows the rule in *Wilkerson* in all civil cases. *Dace v. ACF Industries, Inc.*, 722 F.2d 374, 376 (8th Cir. 1983)[9]:

> The question arises whether the court is permitted to consider evidence that is unfavorable to the party opposing the motion. . . . [O]ur precedents predominantly support the general proposition that only the evidence favoring the nonmoving party (usually, as here, the plaintiff) should be considered. We have recently stated flatly

9 On denial of petition for rehearing, 728 F.2d 976 (8th Cir. 1984).

that on a motion for a directed verdict '[a]ny evidence produced by the prevailing party must be disregarded.'[10]

The Seventh, Ninth and Tenth Circuits have also applied the *Wilkerson* rule beyond the context of FELA cases. *See, e.g., Lyons v. J. C. Penney Co.*, 316 F.2d 753, 753 (7th Cir. 1963) (on motion for directed verdict in personal injury case, "we consider . . . only the evidence favorable to plaintiff and draw the inferences most strongly in her favor"); *Byrne v. Shell Oil Co.*, 295 F.2d 797, 799 (7th Cir. 1961) (on motion for judgment NOV in breach of contract case, "We disregard unfavorable testimony, and inferences and arguments based on that testimony"); *Kingston v. McGrath*, 232 F.2d 495, 497 (9th Cir. 1956) (on motion for directed verdict in medical malpractice case, "viewing the evidence at bar [in light of *Wilkerson*]"); *Lohr v. Tittle*, 275 F.2d 662, 664, n. 1 (10th Cir. 1960) (in personal injury case, "[t]estimony unfavorable to the party against whom a motion for a directed verdict is made is not to be considered in passing on the motion"). In more recent cases, these Circuits seem to have abandoned *Wilkerson sub silentio*. See text, *infra*.

In direct conflict with the cases cited above, some of the Circuits, including the Federal Circuit, hold that all of the evidence may be considered on a motion for a directed verdict or for judgment NOV. This is the rule in the Second Circuit: *Aaron Ferer & Sons Ltd. v. Chase Manhattan Bank*, 731 F.2d 112, 121-22 (2d Cir. 1984) (judgment notwithstanding the verdict should be granted if there is an "overwhelming amount of evidence in favor of movant"); the Third Circuit: *In re Air Crash Disaster at Mannheim, Germany on 9/12/82*, 769 F.2d 115, 123 (3d Cir. 1985), *cert. denied sub nom. Schoenborn v. Boeing Co.*, 474 U.S. 1082 (1986) ("upon review of all of the evidence"); the Fifth Circuit: *Hawkins v. Evans Cooperage*

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10 The Court rested its decision on the crucial importance of the constitutional right to a jury trial. "Occasionally, verdicts may be returned with which judges strongly disagree. This is a price, we think, worth paying for the jury system, which is enshrined in the Bill of Rights and sanctified by centuries of history." 722 F.2d at 376-377.

Co., Inc., 766 F.2d 904, 907 (5th Cir. 1985) ("We must consider all of the evidence—not just that evidence which supports the non-mover's case. . . ."); the Seventh Circuit: *Hannigan v. Sears, Roebuck and Co.*, 410 F.2d 285, 288 (7th Cir. 1969) *cert. denied*, 396 U.S. 902 (1969) ("we are obliged to view all the evidence"); the Ninth Circuit: *M.A.P. Oil Co., Inc. v. Texaco, Inc.*, 691 F.2d 1303, 1306 (9th Cir. 1982) ("Viewing the evidence as a whole"); the Tenth Circuit: *Oldenburg v. Clark*, 489 F.2d 839, 841 (10th Cir. 1974) ("the trial court should view all of the proper evidence in the record"); the Eleventh Circuit: *Walden v. United States Steel Corp.*, 759 F.2d 834, 837 (11th Cir. 1985) ("In reviewing the denial of a motion for judgment n.o.v., this court is obligated to consider all the evidence, not just the evidence supporting the non-moving party's case, in the light most favorable to the non-moving party."); and the D.C. Circuit: *Grogan v. General Maintenance Service Co.*, 763 F.2d 444, 447 (D.C. Cir. 1985) ("In evaluating the jury's verdict, the court is to consider all the evidence. . . .").

A third distinct test for reviewing the evidence on Rule 50 motions is followed by the First and Fourth Circuits. In reviewing the grant of a directed verdict for defendant in a wrongful death action, the First Circuit stated: "We examine the facts in the light most favorable to plaintiff, but without neglecting the uncontradicted evidence introduced by defendant." *Carlson v. American Safety Equipment Corp.*, 528 F.2d 384, 385 (1st Cir. 1976). In reviewing a grant of judgment NOV on the issue of whether a debt was discharged in bankruptcy, the Fourth Circuit held that in determining whether there was substantial evidence to support the verdict, "we consider 'all of the evidence favorable to the position of the party opposing the motion as well as any unfavorable evidence that the jury is required to believe.' Specifically, we must take into account the 'uncontradicted and unimpeached' evidence in support of the moving party." *St. Paul Fire & Marine Insurance Co. v. Vaughn*, 779 F.2d 1003, 1008 (4th Cir. 1985).[11]

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11 The Second Circuit has employed this standard in at least one case. In reviewing the grant of a directed verdict against an antitrust

Finally, there is the most extraordinary conflict of all, the one between the Courts of Appeals and this Court's decision in *Wilkerson*. Although the *Wilkerson* opinion is written in terms of general application, and is not limited to FELA litigation, only the Eighth Circuit unequivocally follows *Wilkerson* in all civil cases. On the face of it, there is a stark conflict between a decision of this Court and decisions of several of the Courts of Appeals which requires resolution. The constitutional implications of the issue also compels its resolution.

Both Wright, Miller & Kane, *Federal Practice and Procedure:* Civil 2d, § 2529 at 572, and W. Moore and J. Lucas, *Moore's Federal Practice*, § 50.02[1] at 50-29 to 50-30 have recognized that the Courts of Appeals apply conflicting rules to test the sufficiency of evidence on a motion for a directed verdict and for judgment NOV. And Professor Wright has explicitly called for this Court to resolve the conflict. "A decision by the Supreme Court, clearly stating which view it takes as to the scope of the FELA and Jones Act decisions, would be of helpful guidance to the lower federal courts." *Federal Practice and Procedure:* Civil 2d, § 2526 at 559.

B. Application of One of the More Rigorous Standards Applied In Other Circuits and Demanded by the Seventh Amendment Would Have Required Denial of the Motion for Judgment NOV in this Case.

A brief review of certain evidence adduced at trial reveals that application of a standard prohibiting consideration of unfavorable contradicted evidence would have yielded a different result on Respondents' motion for judgment NOV.

The decisions by the courts below turned on the meaning of the term "standard relaxation times" in claim 1. As pointed

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plaintiff, the court said, "We need not overlook uncontradicted evidence unfavorable to appellants." *National Auto Brokers Corp. v. General Motors Corp.*, 572 F.2d 953, 956 (2d Cir. 1978), *cert denied* 439 U.S. 1072 (1979).

out above (pp. 8-9, 11), the courts below held that Petitioners failed to prove the existence and use of standard relaxation times, though Petitioners' proof established that the term encompassed a standard range of relaxation times for similar tissue. The District Court's contrary conclusion was based in part on its observation that "T_1 and T_2 values of cancerous tissues of some types overlap significantly with T_1 and T_2 values of other types (and perhaps even to a substantial extent with normal tissues of the same type)" (App., *infra*, p. 25a). Consequently, the District Court held, no one had "yet been able to solve this problem of overlapping and compile standard values that could be used in detecting cancer by the method described in claims Nos. 1 and 2" (*ibid*).

The evidence to support that conclusion—a conclusion rejected by the jury— was drawn from the redirect examination of Dr. Waugh, one of Respondent's principal expert witnesses, who testified as follows (1019a):

> . . . [T]here are apparent differences in T_1 and T_2 from one kind of tissue to another, from one age of tissue to another, et cetera, et cetera. There do tend to be differences, although when you try to pin them down, the ranges for one thing or another thing tend to overlap. Cancer is in a sense a family of tissue. Each cancer is a tissue. So, we just expand the number of tissues there are when we talk about cancer. It's quite plausible that just like any other tissue, this particular kind of cancer may have a different T_1 or T_2 from something else. It was well known for a long time that T_1s and T_2s did differ from one place to another in the human body. . . . [T]here is no reason whatever to think there is anything specific about cancer in that.

Petitioners, however, had introduced contrary evidence to prove that when like types of tissue are compared, the relaxation times for diseased tissue differ significantly from the relaxation times of healthy tissue and that overlapping ranges are inconsequential. For example, when asked what makes

abnormalities and diseases detectable by NMR technology, Petitioners' expert, Dr. Lufkin, testified that (JA. 779a):

> [I]t's the fact of elevation in T_1 and T_2 relaxation times or otherwise alteration of T_1 and T_2 relaxation times from the normal values, the normal tissue. It allows us to show these things.

See also Dr. Lufkin's testimony at JA. 566a-567a, 586a-587a.

Thus, in reliance upon unfavorable evidence, the trial judge concluded that a problem of overlap prevented comparison of the relaxation times obtained from suspect tissue to standards for healthy and cancerous tissue for the purposes of detection. Had he refused to consider this and other unfavorable evidence, or had he at least confined his review to uncontradicted unfavorable evidence, he could not have resolved this issue against Petitioners. The jury, which heard the same evidence, came to the opposite conclusion.

The District Court further determined that it would grant judgment NOV because Petitioners failed to prove that users of Respondents' equipment practiced "the second step (of claims 1 and 2) of measuring the T_1 and T_2 relaxation times of suspected tissue. . . ." (App., *infra*, p. 25a). On this issue, the judge again credited the unfavorable testimony of Respondents' experts. When asked whether their equipment could be used to measure T_2 relaxation time, Respondents' employee, Dr. Hinshaw, testified, "Absolutely not" (JA. 831a). When asked whether use of Respondents' equipment involved "measuring the NMR spin-lattice relaxation times and spin-spin relaxation times for any suspected tissue," Dr. Waugh (Respondents' witness) replied, "no" (JA. 999a-1000a).

However, Petitioners' expert, Dr. Lufkin, had previously testified to the contrary (JA. 586a):

> Q. Okay. Now, in using the NMR apparatus of [Respondents], would somebody be measuring the NMR spin-lattice relaxation times and spin-spin relaxation times of the suspected tissue?

> A. Yes. The spin-lattice relaxation time, or T_1, and spin-spin relaxation times, or T_2, as it's known, is contained in every intensity value displayed on the screen [of Respondents' equipment].

Thus, on a second key issue, the district judge considered unfavorable evidence elicited by the party moving for judgment NOV. Had such evidence been disregarded, as it would have been had the court applied the *Wilkerson* standard—or the standard applied in the First and Fourth Circuits—there would have been no basis upon which to grant Respondents' motion.

In reality, the trial court, in a process cursorily affirmed by the Federal Circuit, usurped the role of the jury protected by the Seventh Amendment: it heard the same conflicting testimony as did the jury, it disagreed with the jury's verdict, and it substituted its factual assessment for the jury's. That is precisely what the Seventh Amendment forbids, and precisely what would have been prevented had the Federal Circuit employed the standard for reviewing Rule 50 motions as is used by the First, Fourth and Eighth Circuits, sometimes by the Seventh, Ninth and Tenth Circuits, and in FELA cases by all the Circuits.

Petitioners' claim of conflict among the Circuits and with this Court's standard in *Wilkerson*, is thus not an abstract issue. Application of a different standard would have yielded a different result. But under the standard employed by the Federal Circuit, the courts below re-examined all the evidence, substituted their judgment for the jury's, and literally offended the specific prohibition of the Seventh Amendment.

CONCLUSION

For the reasons stated above, certiorari should be granted.

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November 1987

APPENDICES

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Appeal Nos. 86-1005, 86-1019

FONAR CORPORATION and DR. RAYMOND DAMADIAN,
Appellants/Cross-Appellees,

v.

JOHNSON & JOHNSON and TECHNICARE CORPORATION,
Appellees/Cross-Appellants.

SIDNEY DAVID, Lerner, David, Littenberg, Krumholz & Mentlik, of Westfield, New Jersey, argued for appellant Fonar Corporation. With him on the brief were *Joseph Littenberg*, *William L. Mentlik*, and *John R. Nelson*.

STEPHEN B. JUDLOWE, Hopgood, Calimafde, Kalil, Blaustein & Judlowe, of New York, New York, argued for appellee Johnson & Johnson. With him on the brief were *Francis J. Murphy* and *Eve Kunen*.

APPEALED FROM: U.S. District Court for
the District of Massachusetts

JUDGE KEETON

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Appeal Nos. 86-1005, 86-1019

FONAR CORPORATION and DR. RAYMOND DAMADIAN,
Appellants/Cross-Appellees,

v.

JOHNSON & JOHNSON and TECHNICARE CORPORATION,
Appellees/Cross-Appellants.

DECIDED: June 16, 1987

Before

MARKEY, *Chief Judge*,
RICH and ARCHER, *Circuit Judges*.

MARKEY, *Chief Judge*.

Appeal and cross-appeal from a judgment of the United States District Court for the District of Massachusetts, 630 F. Supp. 581, 230 USPQ 105 (1986) (Keeton, J.). In Appeal No. 86-1005, Fonar Corporation and Dr. Raymond Damadian (collectively Fonar) (1) appeal from an order granting a judgment notwithstanding the verdict (JNOV) and holding that defendants Johnson & Johnson and its subsidiary Technicare Corporation (collectively J&J) have not infringed or induced infringement of claims 1 and 2 of U.S. Patent No. 3,789,832, and (2) seek a new trial on the issues of infringement and validity of claims 7, 8 and 10 of that patent. We affirm the

judgment that claims 1 and 2 are not infringed and deny Fonar's request that this court order a new trial.

In Appeal No. 86-1019, J&J appeals from a judgment entered on a jury verdict that J&J failed to establish invalidity or unenforceability of claims 1 and 2 of U.S. Patent No. 3,789,832. We vacate the judgment appealed from and dismiss that appeal as moot.

BACKGROUND

I. *The Invention*

Fonar Corporation is the exclusive licensee of U.S. Patent No. 3,789,832 ('832 patent), entitled "Apparatus and Method for Detecting Cancer in Tissue," issued February 5, 1974 to Raymond V. Damadian, on an application filed March 17, 1972. The '832 patent discloses an apparatus and method employing nuclear magnetic resonance (NMR).

NMR techniques rely on the fact that the nuclei of some atoms, including hydrogen atoms, have a "spin", which causes them to act like tiny bar magnets. When exposed to an external magnetic field, they align with it just as a compass needle aligns with the earth's magnetic field. If aligned nuclei absorb applied electromagnetic energy of proper high frequency, however, they jump to a higher energy state and out of alignment with the external magnetic field. Under proper conditions, excited nuclei in a sample can generate a signal that can be detected. In a process called "relaxation," when the applied high frequency is removed, the nuclei release their absorbed energy and realign with the external magnetic field, while the signal decays. Numbers called "spin-lattice relaxation time" (T_1) and "spin-spin relaxation time" (T_2) communicate information about the physical state of the nuclei in a sample.

In 1970, Dr. Raymond Damadian conducted research to test his theory that hydrogen nuclei in water molecules in cancerous tissue would exhibit spin-lattice and spin-spin relaxation times different from those of water molecules in normal tissue. After obtaining encouraging results, Dr. Damadian applied for and obtained the '832 patent.

Claims 1 and 2 of the '832 patent read:

1. A method for detecting cancer comprising:
   a. measuring and establishing standard NMR spin-lattice relaxation times and spin-spin relaxation times for both normal and cancerous tissue of the type under analysis using as an indicator nuclei at least one nuclei which exhibits deviant behavior in cancerous tissue;
   b. measuring the NMR spin-lattice relaxation times and spin-spin relaxation times for the suspected tissue to determine the extent of deviant behavior of the indicator nuclei; and
   c. comparing the values obtained in (b) against the standards obtained in (a).
2. The method of claim 1, wherein the indicator nuclei are cell water protons.

In the late 1970s, Dr. Damadian constructed an NMR apparatus large enough for a human being to be placed within it. Since then, a medical NMR industry (now called Magnetic Resonance Imaging, or MRI) has developed. Doctors use NMR machines to help them decide what is wrong with their patients and what to do about it.

NMR imaging machines display NMR response signal amplitude from points in the body to form an image on a screen. NMR signal amplitude depends on three factors, of which T_1 and T_2 make the greatest contribution, but NMR imaging does not require numerical computation of T_1 and T_2.

II. *Procedural History*

J&J manufactures NMR imaging machines. On September 20, 1982, Fonar sued J&J, alleging that J&J had willfully infringed and induced infringement of the '832 patent, and that J&J had engaged in unfair competition. J&J answered that the '832 parent was invalid and not infringed, and counterclaimed that the '832 patent was invalid and unenforceable

for failure to disclose "relevant material facts" to the Patent and Trademark Office.

At the beginning of trial, Fonar withdrew its unfair competition claim and limited the asserted patent claims to method claims 1, 2, 7, 8 and 10 of the '832 patent. J&J apparently limited its counterclaim, as well, to those claims. Trial was conducted, and the jury rendered its verdict, only on those claims.

The district court conducted a 23-day jury trial on the liability phase of the case in October and November 1985. The jury answered special verdict questions in accordance with Fed. R. Civ. P. 49(a), including eight questions on infringement. The jury found that J&J had infringed or induced infringement, both literally and under the doctrine of equivalents, of claims 1 and 2, but had not willfully done so. The jury found claims 7, 8 and 10 not infringed. As Judge Keeton's opinion recounts, 630 F. Supp. at 581-82, 230 USPQ at 105-06, the jury found claims 1 and 2 valid and enforceable, and claims 7, 8 and 10 invalid.

J&J moved for JNOV, or in the alternative, for a new trial. The district court granted that portion of J&J's JNOV motion requesting a holding of noninfringement of claims 1 and 2, but denied that portion requesting a holding that claims 1 and 2 were invalid and unenforceable. The court also denied J&J's motion for a new trial.

III. *The District Court's Opinion*

The "central dispute", said Judge Keeton, was "whether reasonable persons could find that the evidence supports contentions of infringement of the method claims as permissibly interpreted." 630 F. Supp. at 584, 230 USPQ at 107.

Fonar interpreted the phrase "measuring and establishing standard" T_1 and T_2 values in claim 1 and dependent claim 2 as meaning the experience and images carried in the minds of doctors. Judge Keeton, however, concluded that Fonar's interpretation was "extraordinary" and "impermissible—a meaning

that cannot be accepted by a reasonable person." 630 F. Supp. at 586, 230 USPQ at 109. Judge Keeton said:

> The argument becomes a distortion of common sense meaning when [Fonar] assert[s] that a diagnostician is "measuring and establishing standard" NMR relaxation times when, with accumulated experience, the diagnostician learns to draw inferences from the shapes of images observed during extensive experience, stores in personal memory those images as standards, and then compares the standards with the images seen as the diagnostician examines suspected tissue for the purpose of detecting cancer. The words of Claims 1 and 2 will not bear the interpretation [Fonar] thus place[s] upon them.

630 F. Supp. at 587, 230 USPQ at 110. Judge Keeton concluded, "I cannot sustain [Fonar's] arguments that the jury's answers should be construed as findings supported by evidence that using comparative intensity values of NMR from adjacent tissues to produce images is, or is the equivalent of, practicing the several steps of the methods of Claims 1 and 2." *Id.*

Judge Keeton denied J&J's motion for judgment notwithstanding the verdict that J&J had not proved invalidity of claims 1 and 2 by clear and convincing evidence, saying the evidence supported that verdict. 630 F. Supp. at 589, 230 USPQ at 111. Respecting enforceability, Judge Keeton ruled "there is support in the evidence for the jury finding that [J&J] has failed to prove that Dr. Damadian or his attorney failed to disclose to the Patent Office relevant information that they knew or should have known that a reasonable examiner would have considered important in allowing or rejecting the application." 630 F. Supp. at 590, 230 USPQ at 112.

On January 31, 1986, the district court entered a judgment that J&J had infringed no claims of the '832 patent, that claims 7, 8 and 10 of the '832 patent were invalid, and that J&J had not proved invalidity or unenforceability of claims 1 and 2. 630 F. Supp. at 590, 230 USPQ at 112.

ISSUES

(1) Whether the district court erred in granting J&J's motion for JNOV on infringement of claims 1 and 2 of the '832 patent.

(2) Whether Fonar is entitled to a new trial on infringement and validity of claims 7, 8 and 10 of the '832 patent.

(3) Whether the portions of the judgment dealing with validity and enforceability of claims 1 and 2 of the '832 patent are moot.

OPINION

I. *Grant of J&J's Motion for JNOV on Infringement*

A. *Standard of Review*

To convince this court that the trial judge erred in granting J&J's motion for JNOV on infringement of claims 1 and 2, Fonar must show that there was substantial evidence to support the jury's findings. *Orthokinetics, Inc.* v. *Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1571, 1 USPQ2d 1081, 1085 (Fed. Cir. 1986); *Railroad Dynamics, Inc.* v. *A. Stucki Co.*, 727 F.2d 1506, 1512, 220 USPQ 929, 936 (Fed. Cir.), *cert. denied*, 469 U.S. 871 (1984); *see Rios* v. *Empresas Lineas Maritimas Argentinas*, 575 F.2d 986, 989-90 (1st Cir. 1978) (affirming denial of JNOV where jury could "reasonably" have reached its verdict on the record). " 'Substantial' evidence is such relevant evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." *Perkin-Elmer Corp.* v. *Computervision Corp.*, 732 F.2d 888, 893, 221 USPQ 669, 673 (Fed. Cir.), *cert. denied*, 469 U.S. 857 (1984).

The jury's verdict of infringement of claims 1 and 2 depended on construction of claim 1. To obtain a reinstatement of that verdict, Fonar must show that reasonable jurors, after reviewing all the evidence, could have concluded that users of J&J's NMR machines infringe claims 1 and 2 when they employ the mental images they have acquired through experience. *Bio-Rad Laboratories, Inc.* v. *Nicolet Instrument Corp.*,

739 F.2d 604, 613, 222 USPQ 654, 661 (Fed. Cir.), *cert. denied*, 469 U.S. 1038 (1984).

We conclude that the district court correctly determined that *no* evidence, and thus no substantial evidence, supports a finding that users of J&J's machine practice the method of claims 1 and 2 of the '832 patent. The jury's verdict that J&J infringed and induced infringement of those claims therefore cannot stand.

B. *Infringement*

The first step in determining infringement is to construe the claims. *E.g.*, *Moeller* v. *Ionetics, Inc.*, 794 F.2d 653, 656, 229 USPQ 992, 994 (Fed. Cir. 1986); *McGill Inc.* v. *John Zink Co.*, 736 F.2d 666, 671, 221 USPQ 944, 948 (Fed. Cir.), *cert. denied*, 469 U.S. 1037 (1984); *Autogiro Co.* v. *United States*, 384 F.2d 391, 401, 155 USPQ 697, 705 (Ct. Cl. 1967). As the district court instructed the jury, construction of disputed claims requires reference to the specification, the prosecution history, and the other claims. *Moeller*, 794 F.2d at 656, 229 USPQ at 994; *McGill*, 736 F.2d at 673-75, 221 USPQ at 949-50; *Autogiro*, 384 F.2d at 397-99, 155 USPQ at 702-04. Expert testimony, including evidence of how those skilled in the art would interpret the claims, may also be used. *Moeller*, 794 F.2d at 657, 229 USPQ at 995; *McGill*, 736 F.2d at 675-76, 221 USPQ at 950. The second step in determining infringement is to decide whether properly interpreted claims encompass the alleged infringing method. *Moeller*, 794 F.2d at 656, 229 USPQ at 994; *McGill*, 736 F.2d at 671, 221 USPQ at 948; *Autogiro*, 384 F.2d at 401, 155 USPQ at 705.

1. *Fonar's Contentions*

Fonar states in its brief that "the meaning which [Fonar] ascribed [at trial] to the term 'standard' as used in claim 1 of the Damadian patent was just that—a baseline or reference established for purposes of later comparison." Fonar says "in using NMR imaging apparatus for the detection of cancer, one must first generate and become familiar with NMR images of

normal and cancerous anatomy (. . .). These images of normal and cancerous anatomy then serve as standards or references against which NMR images of suspected anatomy can be compared." Fonar then says "it has been and is [Fonar's] contention (supported by more-than substantial evidence) that infringement occurs when users of [J&J's] imaging equipment compare images obtained for suspect tissue with images previously obtained for known normal and known cancerous tissue of the same type."

This court has carefully reviewed all the "substantial evidence" Fonar cites in its briefs. Although the record contains extensive testimony about what users of J&J's machines actually do, none of the cited testimony is about infringement of a properly interpreted claim. Four of the five witnesses on whose testimony Fonar relies never even mention the '832 patent. Dr. Lufkin's testimony is the only evidence Fonar cites that refers to claims 1 and 2. That testimony compares the claims of the '832 patent to the skills that doctors practice when they use J&J's machines. It is not evidence in support of Fonar's contention that "standard" as used in claim 1 of the '832 patent means a "baseline" of "images" stored in a doctor's memory.

2. *Extrinsic Evidence*

Fonar makes no argument that the '832 patent specification, the other claims, or the prosecution history, all of which the jury had before it, support its theory of infringement of claim 1 and dependent claim 2, as indeed they do not.

The '832 patent specification describes experiments Dr. Damadian conducted with tissues from normal rats and rats with tumors. The specification discloses how Dr. Damadian computed T_1 and T_2 values for hydrogen nuclei in the water of those tissues, and displays the computed values in tables of numbers. The patent does not specifically call the T_1 and T_2 values "standards", and does not otherwise define "standards", though the specification does refer to "standards" and "tables of standard values" in the context of recorded numerical data. The patent contains no reference whatever to "imaging" or "images".

Though inventors may be their own lexicographers, they must use words in the same way in the claims and in the specification. *McGill*, 736 F.2d at 674, 221 USPQ at 949; *Autogiro*, 384 F.2d at 397, 155 USPQ at 702-03. Because the specification does not use the word "standard" to mean *images stored in a doctor's memory*, it does not support Fonar's theory that "standard" as used in claim 1 means such images and that the claims are infringed by use of such images.

Nonasserted apparatus claims 12 and 14 use the word "standard" in a manner more consistent with the specification and distinct from the manner now contended for by Fonar. The reference in claims 12 and 14 to "reference tables" as comprising the standards refutes Fonar's theory that "standard" in claims 1 and 2 is met by images stored in a doctor's memory and his or her experience in interpreting those images.

3. *Conclusion*

Because Fonar has pointed to no evidence that supports its theory that the term "standard" as used in claim 1 is met by mental images and experience of doctors, Fonar has not shown that substantial evidence supports the jury's verdict that J&J literally infringed claims 1 and 2 of the '832 patent. Moreover, Fonar does not explain how the jury could have found infringement under the doctrine of equivalents. Because reasonable jurors could not have found infringement of claims 1 and 2 except by adopting Fonar's erroneous theory and interpretation, we have no plausible basis from which to conclude that substantial evidence supports the jury's verdict that J&J infringed claims 1 and 2 under the doctrine of equivalents. Clearly, the use of doctor's memorized images and experience, if it could be considered a performance of the claimed method at all, could not be considered a performance in a substantially same way. *Graver Tank & Mfg. Co.* v. *Linde Air Prod. Co.*, 339 U.S. 605, 608, 85 USPQ 328, 330 (1950).

We conclude that reasonable jurors, after reviewing all the evidence, could not have found claims 1 and 2 of the '832 patent to have been infringed by employment of the mental images and experience of the users of J&J's NMR machines.

Judge Keeton properly granted JNOV. *Bio-Rad*, 739 F.2d at 613, 222 USPQ at 661.

II. *Fonar's Argument for a New Trial*

Fonar argues that a new trial is required on validity and infringement of claim 7 and dependent claims 8 and 10.[1] The sole ground for that argument is an assertion that the district court gave an erroneous jury instruction with respect to clause (f) of claim 7. The argument is spurious.

Clause (f) of claim 7 reads:

> f. comparing the values obtained in (e) with predetermined like values for normal and for cancerous tissue, said comparison indicating the existence and degree of malignancy.

In the course of instructing the jury, the district court listed all six steps of claim 7, including clause (f):

> 6. [clause (f)] Comparing the T-1 and T-2 values obtained with predetermined like values for normal and for cancerous tissues to determine the existence and degree of malignancy.

Fonar filed no motion for a new trial, and indeed no post-trial motions at all. It is established, however, that a party who had timely objected to an instruction, as Fonar apparently did here, may raise it on appeal as a basis for a new trial, even though that party had filed no post-trial motions. 6A J. Moore, J. Lucas & G. Grotheer, *Moore's Federal Practice* ¶ 59.14 (2d ed. 1986); *see Braunstein* v. *Massachusetts Bank & Trust Co.*, 443 F.2d 1281, 1285 (1st Cir. 1971).

Fonar says the district court committed "prejudicial error" in "rewording" clause (f) of claim 7 in its instructions instead of quoting that clause directly. Fonar says the "rewording"

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1 Fonar did not move for judgment notwithstanding the jury's verdict that claims 7, 8 and 10 were invalid and not infringed. The merits of the judgment entered on that verdict by the district court are therefore not before us.

implied that the phrase "said comparison indicating the existence and degree of malignancy" is a limitation of the claim, whereas Fonar says that phrase was merely an indication of a desired result. We fail to see how the phrase appearing in the claim and setting forth what the comparison indicates can be simply expunged as stating a result and as not constituting a limitation. Nor can we see a meaningful difference between "comparison indicating" and "to determine" in the context of the entire instruction.

Moreover, if the district court had erred in paraphrasing clause (f), Fonar could obtain a new trial only by showing that that error affected its substantial rights. 28 U.S.C. § 2111; Fed. R. Civ. P. 61. Fonar has not even approached the making of such showing. Nor could it on this record, which reflects no unfairness and no injustice of any kind. One is entitled to a fair, not a perfect trial, and the record establishes that the trial in this case was eminently fair. Counsel for Fonar quoted the precise language of clause (f) during his examination of Dr. Lufkin. The jury had a copy of the '832 patent, including the language of clause (f), on hand in the jury room during its deliberations. In his instructions, Judge Keeton directly and exactly quoted clause (f) shortly after he gave the version Fonar attacks. Finally, instructions must be examined as a whole. *Orthokinetics*, 806 F.2d at 1582, 1 USPQ2d at 1093; *Charles A. Wright, Inc.* v. *F.D. Rich Co.*, 354 F.2d 710, 713-14 (1st Cir.), *cert. denied*, 384 U.S. 960 (1966). Examined as a whole in light of Fonar's attack on clause (f), the instructions here clearly pass muster. We discern no prejudice whatever to Fonar's substantial rights and no abuse of discretion in Judge Keeton's instructions.

III. *Denial of J&J's Motion for JNOV on Validity and Enforceability of Claims 1 and 2*

There being no infringement by J&J of any asserted claim, there remains no case or controversy between the parties. We need not pass on the validity or enforceabiliry of claims 1 and

2.[2] Thus we need not decide whether the district court erred in denying J&J's motion for JNOV on validity and enforceability. *See Jervis B. Webb Co.* v. *Southern Sys., Inc.*, 742 F.2d 1388, 1398-99, 222 USPQ 943, 948-49 (Fed. Cir. 1984); *Teledyne McCormick Selph* v. *United States*, 558 F.2d 1000, 1001, 195 USPQ 261, 262 (Ct. Cl. 1977) ("[W]e think it proper not to render a determination of validity that is immaterial to our disposition of this case [on the basis of noninfringement]."); *Patent Scaffolding Co.* v. *Up-Right, Inc.*, 194 F.2d 457, 93 USPQ 80 (9th Cir.), *cert. denied*, 343 U.S. 958 (1952) (alleged infringer lacked standing to appeal denial of JNOV on validity where district court had granted JNOV of noninfringement and patentee had not appealed the latter judgment); *cf. Altvater* v. *Freeman*, 319 U.S. 359, 363-65, 57 USPQ 285, 288 (1943) ("To hold a patent valid if it is not infringed is to decide a hypothetical case," but a counterclaim for invalidity is not mooted where counterclaim deals with additional patent claims and devices not involved in the complaint and with license issues.).

Accordingly, we dismiss Appeal No. 86-1019 as moot.

CONCLUSION

The district court's judgment that claims 1 and 2 are not infringed is affirmed. Fonar's request that this court order a new trial is denied. The judgment that J&J has not proven claims 1 and 2 invalid or unenforceable is vacated and the appeal from that judgment is dismissed as moot.

AFFIRMED IN PART, VACATED IN PART

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2 The record contains no assertion that J&J infringes the '832 patent by any methods other than those found not to infringe, or that J&J's machines infringe the nonasserted apparatus claims. J&J's counterclaim merely repeated the affirmative defenses of invalidity and unenforceability and the verdict form, with no objection by J&J, dealt only with the asserted claims. J&J's motion for JNOV dealt only with claims 1 and 2.

OPINION OF JANUARY 10, 1986 BY JUDGE ROBERT E. KEETON

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

Civil Action No. 82-2751-K

FONAR CORPORATION and DR. RAYMOND DAMADIAN,
Plaintiffs,

v.

JOHNSON & JOHNSON and TECHNICARE CORPORATION,
Defendants.

OPINION—January 10, 1986

KEETON, *District Judge*.

Patent No. 3,789,932, issued to Dr. Raymond Damadian, concerns a method and apparatus for detecting cancer. The complaint in this case alleges that methods and apparatus for Nuclear Magnetic Resonance (NMR) imaging, also called Magnetic Resonance Imaging (MRI), infringe claims of the patent. At the commencement of trial, plaintiffs waived contentions other than those related to alleged infringements of methods described in Claims 1, 2, 7, 8, and 10 of the patent.

The liability phase of the case was tried before a jury in October and November 1985. In answer to interrogatories submitted in accordance with Fed. R. Civ. P. 49(a), the jury, as to each claim, found against the defense contentions

> "that the subject matter of the claim was not an art involving more than an insignificant or trivial method or

process and was instead a phenomenon of nature," Question 1;

"that the specification fails to state with required clarity and particularity how to make and use the invention," Question 3(a);

"that the differences between the subject matter of the claimed invention and the prior art were such that the subject matter of the claimed invention, as a whole, would have been obvious in 1970 to a person having ordinary skill in the art to which that subject matter pertains," Question 4; and

"that, during the examination of the patent, Dr. Damadian or his attorney failed to disclose to the Patent Office relevant information that they knew or should have known that a reasonable examiner would have considered important in allowing or rejecting the application," Question 5.

As to Claims 1 and 2, the jury also found against defense contentions

"that no claimed result was attainable by the steps stated in the claim," Question 2, and

"that the claim fails to particularly point out and distinctly claim the subject matter of the alleged invention," Question 3(b),

but the jury sustained these two defense contentions as to Claims 7, 8, and 10 of the patent.

Also, in answering Question 6 and 7 regarding infringement (including infringement, inducing infringement, and both infringement and inducing infringement under the doctrine of equivalents), the jury found for plaintiffs as to Claims 1 and 2 of the patent, but found against plaintiffs as to Claims 7, 8, and 10 of the patent.

Now before the court are the parties' motions for judgment, defendants asking (inter alia) that the court disregard the jury's findings of infringement of Claims 1 and 2 of the patent. At

the time of declining to grant defendants' motions for directed verdict, I explicitly reserved judgment, determining that as a matter of sound judicial administration I should submit the case to the jury and consider the grounds of the defense motion more fully should the verdict make that necessary. Having now given full consideration to the submissions of the parties, I conclude that judgment must be entered for defendants as to all claims of infringement, notwithstanding the jury answers of infringement of Claims 1 and 2 of the patent.

I.

For at least several decades before the 1970s, NMR was well known, though the developed, practical uses were few. It was known that tissue, placed in a magnetic field, after being excited by another, orthogonal magnetic pulse, releases electromagnetic waves (detectable by radio frequency) as it returns to its unexcited state. By 1970, available NMR equipment could be used to measure these electromagnetic waves and determine the spin-lattice (T_1) and spin-spin (T_2) NMR relaxation response times of tissue returning to normal state after excitement. It was also known that tissues of different types have different T_1 and T_2 values (relaxation times).

By 1970, Dr. Damadian had come to believe that T_1 and T_2 values for cancerous tissue differ from T_1 and T_2 values for noncancerous tissue. Evidence as to the originality of his theory was to some extent disputed at trial, but at the least Dr. Damadian was a pioneer in efforts to find ways of putting knowledge and theory about T_1 and T_2 values of different tissues to use in detecting cancer.

In 1970, using a state-of-the-art NMR spectrometer, Dr. Damadian determined T_1 and T_2 values for two types of cancers induced in test rats and T_1 and T_2 values for other, noncancerous tissues from these and other rats. His results supported his hypothesis that T_1 and T_2 values of cancerous tissues differ from those of noncancerous tissues. He published his findings in a scientific journal, together with observations about their practical significance.

Within a time period that averted a challenge to the patent at issue as matter within the public domain, he filed an application for the patent that described two embodiments of apparatus. The Figure 1 embodiment described methods of placing tissue to be examined in a very small locus such that state-of-the-art NMR equipment could be used to determine T_1 and T_2 values of the tissue. Claims 1 and 2 of the patent were associated with the Figure 1 embodiment.

The Figure 2 embodiment described apparatus that would create a magnetic field large enough for an entire human being to be placed within it. Claims 7, 8, and 10 of the patent were associated with the Figure 2 embodiment. Both at the time of application and at the time of patent issuance, no apparatus of the type described in Figure 2 had been developed either by Dr. Damadian and his assistants or by anyone else.

At no place in the patent application, or in any other documents in evidence that were written before the patent was issued, does the word "imaging" or any derivative or synonym appear. For reasons developed more fully in Part IV, below, plaintiffs' arguments that passages in the application somehow refer to imaging are, to put the point mildly, interpretations that the words will not bear. Of course, the fact that the application did not seek a patent for imaging apparatus or method is not conclusive against plaintiffs in this action. It must nevertheless be determined whether the defendants' imaging apparatus, and methods of use they induce, practice any of the methods clamed in the Damadian patent.

Plaintiffs placed in evidence in the presence of the jury, without objection, the fact that Dr. Damadian was the first to succeed, in the late 1970s, in constructing a functioning apparatus large enough to permit a person to be placed in a magnetic field for NMR imaging. This extraordinary achievement also, however, is not decisive of the issues in the present case. The evidence offered at this trial did not disclose exactly how that apparatus functioned and whether it practiced any of the methods claimed in Patent No. 3,789,832 (unless all imag-

ing apparatus does so—a contention rejected in Part IV, below).

The evidence did disclose, however, that commercial NMR scanners now in use, including all scanners marketed by defendant Technicare, form an image by displaying NMR response signal strength (amplitude) measured for each locus (pixel) to form an image on a screen by showing contrasts among the many dots (representing pixels) on the screen (in shades from white to black, or in color).

The signal amplitude from each locus comes from hydrogen protons in that locus and depends upon three factors, of which T_1 and T_2 are by far the greater contributors. The signal strength, though not recorded in the ordinary functioning of scanners, is measurable in units of amplitude of the signal, also referred to as signal intensity. In contrast, T_1 and T_2 values are units of time. Although T_1 and T_2 can be calculated, the formulae for doing so are complex. Nevertheless, the calculation can be readily accomplished by computer. However, imaging apparatus need not, and does not as routinely used, compute T_1 and T_2 values. The contrast of shades, or colors, of pixels that create the image on the screen are derived from comparison of the strength of the signals from the different pixels. The NMR signal has a single value for each pixel, and neither that particular value, nor the value of any component that contributes to it, is itself significant to imaging. Rather, it is the comparison between that value and the values of other pixels that is used to develop the contrasts that make the image. Indeed, current imaging equipment allows the operator to make an equipment adjustment when the contrasts are either slight or great, to sharpen or decrease contrast and produce more useful images. Thus, it is not measured standards of T_1 and T_2 that are used in imaging but contrasts of signal strength among those pixels that are within the scope of the image.

II.

Issues were narrowed at trial to the method claims stated in Claims 1, 2, 7, 8, and 10, which are as follows:

1. A method for detecting cancer comprising:

a. measuring and establishing standard NMR spin-lattice relaxation times and spin-spin relaxation times for both normal and cancerous tissue of the type under analysis using as an indicator nuclei at least one nuclei which exhibits deviant behavior in cancerous tissue;

b. measuring the NMR spin-lattice relaxation times and spin-spin relaxation times for the suspected tissue to determine the extent of deviant behavior of the indicator nuclei; and

c. comparing the values obtained in (b) against the standards obtained in (a).

2. The method of claim 1, wherein the indicator nuclei are cell water protons.

. . .

7. A method of detecting cancerous mammalian tissue comprising:

a. providing a magnetic field space having a locus therein of equal field and strength;

b. positioning a mammal within said space;

c. directing a beam of magnetic radiation having a predetermined frequency to impinge on said locus in a direction orthogonal to the direction of the magnetic field, the frequency being selected to permit absorption by selected nuclei in the region of impingement of energy from the beam through nuclear magnetic resonance absorption, thereby inducing transitions in the selected nuclei between equilibrium states and higher energy states;

d. terminating the beam after a predetermined duration;

e. measuring the spin-lattice relaxation time and the spin-spin relaxation time values as the energized nuclei return to their equilibrium states; and

f. comparing the values obtained in (e) with predetermined like values for normal and for cancerous tissue, said comparison indicating the existence and degree of malignancy.

8. A method according to claim 7 further comprising scanning the beam of magnetic radiation across the locus.

. . .

10. A method according to claim 7, wherein the selected nuclei comprise water protons.

. . .

III.

The central dispute in this case is not about legal rules but about proper or at least permissible interpretations of Claims 1, 2, 7, 8, and 10 of the patent and whether reasonable persons could find that the evidence supports contentions of infringement of the method claims as permissibly interpreted.

There is a dispute as to the most appropriate way to state the legal rules bearing on claim construction, but, even this is not a *material* dispute of law.

Defendants argue that claim construction is a matter of law for the court, not the jury, citing *Molinaro v. Fannon/Courier Corp.*, 745 F.2d 651, 654 (Fed. Cir. 1984); *ACS Hosp. Systems, Inc.* v. *Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984) and the authorities there cited; *Raytheon Co.* v. *Roper Corp.*, 724 F.2d 951, 956 (Fed. Cir. 1983), *cert. denied*, ____ U.S. ____, 105 S. Ct. 127 (1984); *Fromson v. Advanced Offset Plate, Inc.*, 720 F.2d 1565, 1569 (Fed. Cir. 1983); *SSIH Equipment SA* v. *U.S. ITC*, 718 F.2d 365, 376 (Fed. Cir. 1983).

Plaintiffs, on the other hand, argue that "claim construction" is to be resolved by a two-part analysis involving, first, ascertaining the scope of the claims and, second, determining whether the claims cover the accused method. They argue that even the first step is for the jury if "the meaning of a term of art in the claims is disputed," *McGill, Inc.* v. *John Zink Co.*, 736 F.2d 666, 671-72 (Fed. Cir. 1984), *cert. denied*, ____ U.S. ____, 105 S. Ct. 514, 83 L.Ed.2d 404 (1984), and that the

second step is for the jury, *Palumbo* v. *Don-Joy Co.*, 762 F.2d 969, 974 (Fed. Cir. 1985); *Envirotech Corp.* v. *Al George, Inc.*, 730 F.2d 753, 758 (Fed. Cir. 1984); *Fromson v. Advanced Offset Plate, Inc.*, 720 F.2d 1565, 1569 (Fed. Cir. 1983).

The issue as to whether, as plaintiffs argue, determining that claims do or do not cover the accused method is a part of "claim construction" is perhaps more semantic than substantive. In any event, assuming plaintiffs' formulation of the applicable legal rules to be correct does not affect the outcome in this case, because of an implicit qualification. That is, even when an issue is treated as one of "fact" rather than "law," the court must grant judgment notwithstanding the verdict

> when the court is convinced: . . . that reasonable persons could not in light of the evidence have found the facts necessary to support the jury's verdict; . . . .

Weinar v. *Rollform, Inc.*, 744 F.2d 797, 805 (Fed. Cir. 1984), *cert. denied*, ____ U.S. ____, 105 S. Ct. 1844 (1985). Applying this rule to the issue of construction of a claim, the court, if convinced that reasonable persons properly instructed on the law could not interpret a claim in a way that would support the plaintiffs' contention, must direct a verdict against the plaintiffs as to that contention or, having allowed the matter to go to the jury, must disregard any impermissible finding of the jury on motion for judgment notwithstanding the verdict. Apart from this one qualification, which was neither stated nor challenged in plaintiffs' post-trial submission, I need not and do not consider the contrasting implications—for other cases—of the somewhat different ways in which plaintiffs and defendants describe the roles of court and jury in "claim construction."

Of course, in examining the text of the claims and all other relevant evidence to determine whether reasonable persons could interpret a claim in a way that would support infringement, all instances of allowable differences of interpretation by reasonable persons must be resolved in plaintiffs' favor.

IV.

A reading of the five claims at issue in this case discloses that they have in common one characteristic. Each of them expresses a limitation that the method claimed measures the NMR spin-lattice (T_1) and spin-spin (T_2) relaxation times for both normal and cancerous tissue to establish contrasting standard values for normal and cancerous tissues, also measures T_1 and T_2 for suspected tissue, and then determines whether or not it is cancerous (thereby detecting cancer if it exists) by comparing the T_1 and T_2 values of the suspected tissue with the standard values.

The evidence before the court in this trial would not support a finding that any person has yet succeeded in using this method to detect cancer or any other disease or abnormality. Interpreted most favorably to plaintiffs, the evidence is that the NMR imaging methods (now used by plaintiffs, by defendants, and by others) instead determine (or, I will assume in plaintiffs' favor, "measure") the intensity of the NMR signals emitted from localized points in body tissues, plot (with computer assistance) the pattern of the intensity of the different signals from different localized points to form images upon a screen, and use those images in diagnosis of cancer and other abnormalities. Thus the revealing comparison is not between T_1 and T_2 values for suspected tissue of a particular type in a particular human body, on the one hand, and standard values, on the other hand, but instead is between intensity of signals emitted by tissues side by side in the human body, which, because of the different qualities of the tissues, whether diseased or not, produce different signal intensities and, when plotted, produce an image. Because of normal differences among body tissues, this method produces an image even if all tissues are normal. Detecting cancer by this method depends not on determining that T_1 and T_2 values match a standard for cancerous tissue but instead upon inferences of a diagnostician from the shapes and locations of images, and from the diagnostician's comparison of images rather than comparison of T_1 and T_2 values.

Plaintiffs argue that infringement of the methods stated in Claims 1 and 2 is nevertheless proved because the respective intensities of the NMR signals received from the multitude of different points within the imaged tissues are functions of only three variables, two of which are T_1 and T_2 values and the third of which has far less influence than T_1 and T_2 have on the intensity of the signal. It is true that the evidence clearly supports this factual observation, but the conclusion for which plaintiffs argue cannot be accepted by a reasonable reader of the claims or by a reasonable person finding the facts upon the evidence before the court and jury in this case.

In an effort to escape the force of the undisputed language of the claims and the undisputed facts, plaintiffs advance a series of arguments attaching special meanings to key words.

In some instances, the attributions of meaning that plaintiffs advance are at least arguably within permissible limits. For example, one of the steps of the patent claims is "measuring" T_1 and T_2 values. But witnesses testified that T_1 and T_2 cannot be measured and must instead be calculated or computed from measurements of other values. Even plaintiffs' principal expert witness (Dr. Lufkin) insisted that T_1 and T_2 cannot be "measured" and instead must be computed by use of complex formulae. Undaunted by the insistence of their own expert, plaintiffs argue that one may measure indirectly as well as directly, and may in the process use computers and complex formulae as instruments of measurements. Of course, a party is not judicially estopped by the idiom in which its expert witness chooses to express expert opinion testimony. And, in this instance, I would be inclined to accept plaintiffs' argument as a permissible interpretation of "measuring" unless it should be determined, as defendants argue, that "file wrapper estoppel" and other theories of context preclude the interpretation plaintiffs now advance. This issue seems debatable. But, for reasons stated below, I need not decide it.

Another debatable attribution of meaning is reflected in an ongoing controversy, extending throughout trial and in post-trial submissions. Plaintiffs contend that one can "detect"

cancer without making a "diagnosis" of cancer, and defendants contend that "detecting cancer" necessarily implies that it is cancer that is detected and not some other abnormal, or even normal, tissue that produces an image different from that of adjacent tissues. As to this dispute, also, I conclude that I need not determine whether plaintiffs' argument of meaning is an interpretation of "detecting cancer," as that phrase is used in the patent, that a reasonable person might adopt.

Plaintiffs also argue that any method that makes use of the intensity of NMR signals in plotting an image is literally "measuring" T_1 and T_2 and, in the alternative, is at least equivalent to measuring those values. The validity of this step of plaintiffs' argument is in doubt for reasons already stated, but I need not and do not decide the case on this basis.

The critical remaining step of plaintiffs' argument is that imaging is, or is equivalent to, comparing the measured T_1 and T_2 values of suspected tissue with standard values in order to detect cancer if it exists in the suspected tissue.

In this respect plaintiffs propose a truly extraordinary meaning of key words of the patent claims. I conclude that it is impermissible—a meaning that cannot be accepted by a reasonable person, either when the words are examined standing alone or when they are examined in the context of the patent application and with the benefit of all the evidence received in this trial, viewed most favorably to plaintiffs.

The words to which this impermissible contention of meaning refers are the words, in Claims 1 and 2, "measuring and establishing *standard*" values for T_1 and T_2 in cancerous and in normal tissues, "*measuring*" T_1 and T_2 for suspected tissue, and "comparing the values" for the suspected tissue "against the *standards*" for healthy and cancerous tissue (emphasis added). The meaning plaintiffs seek to attribute to these phrases and in particular to what these phrases say about *standards* established by *measuring* is wholly beyond the scope of any permissible interpretation that a reasonable person could accept. Additional contextual detail will help to make this point even clearer than is apparent at once from merely reading these phrases in context.

Plaintiffs argue that they are relying on method, not apparatus, claims, and that it is not defendants' apparatus but instead the users of the apparatus who are induced by defendants and their apparatus to practice the method, or methods, of Claims 1 and 2. But not even the most experienced and sophisticated users of NMR scanning apparatus practice the first of the method steps described in Claims 1 and 2—that is, "measuring and establishing standard" NMR spin-lattice (T_1) relaxation times and standard spin-spin (T_2) relaxation times for both cancerous tissues and healthly tissues of the type under analysis. Indeed, the evidence would not support a finding that anyone has yet established any T_1 and T_2 standards for cancerous and healthy human tissues. Efforts to do so have revealed a phenomenon that T_1 and T_2 values of cancerous tissues of some types overlap significantly with T_1 and T_2 values for normal tissues of other types (and perhaps even to a substantial extent with normal tissues of the same type). There was no evidence offered at this trial to support a finding that anyone has yet been able to solve this problem of overlapping and compile standard values that could be used in detecting cancer by the method described in Claims 1 and 2.

Also, plaintiffs' argument that NMR imaging apparatus users practice all steps of the method of Claims 1 and 2 fails because there is no evidence to support a finding that users practice either the second step (of Claims 1 and 2) of measuring the T_1 and T_2 relaxation times of suspected tissue or the third step of comparing the measurements for the suspected tissue with the standards for healthy and cancerous tissues.

The argument becomes a distortion of common sense meaning when plaintiffs assert that a diagnostician is "measuring and establishing standard" NMR relaxation times when, with accumulated experience, the diagnostician learns to draw inferences from the shapes of images observed during extensive experience, stores in personal memory those images as standards, and then compares the standards with the images seen as the diagnostician examines suspected tissue for the purpose of detecting cancer. The words of Claims 1 and 2 will not bear the interpretation plaintiffs thus place upon them to make

them so sweeping that they cover all uses of NMR imaging apparatus to detect cancer. Perceptive and pioneering as the patent application may have been, it cannot reasonably be read as a forecast of NMR imaging. The evidence will not support an interpretation of what users of NMR imaging appartus do that describes their use as "measuring and establishing standard" NMR T_1 and T_2 relaxation times for both cancerous tissues and healthy tissue of various types, then measuring T_1 and T_2 of suspected tissue, and finally comparing these measured values with the standards.

For these reasons I cannot sustain plaintiffs' argument that the jury's answers should be construed as findings supported by evidence that using comparative intensity values of NMR signals from adjacent tissues to produce images is, or is the equivalent of, practicing the several steps of the methods of Claims 1 and 2.

As noted above, the comparision that occurs in imaging is one between tissues side by side, which because of NMR signal intensity values to which T_1 and T_2 values contribute, show up alike or in contrast with each other in the resulting image. Not only do normal and cancerous tissues of a given type tend strongly to show contrasts. So also do normal tissues of different types.

In summary, the evidence before the court in this trial would not support a finding that the accumulated scientific knowledge about T_1 and T_2 values for various types of tissues is sufficient even today, much less at the time of the Damadian patent, to enable anyone, no matter how exceptionally skilled, to prepare a set of standards that would, by reference to T_1 and T_2 values, distinguish cancerous from normal tissue. An optimist may hope that it will yet be possible to develop such standards—such "markers" of cancer as they have been characterized in the evidence in this case. But no such standards existed in 1970, nor do they exist today. Thus, methods of imaging in use today do not use this method and cannot be found to be infringements of this method. Since this method is common to all of the claims at issue in this case, no infringement has been or could have been proved.

In reaching these conclusions about the claims at issue and the alleged infringements of these claims, I have taken into account not only the language of these claims but as well the patent specification, the prosecution history of the patent, all other claims in the patent, all expert testimony offered at trial, and all other circumstances in evidence regarding the context. Neither in the language of the claims at issue nor in any other evidence before the court and jury in this case is there support for a finding of infringement of Claims 1 and 2 (or, for that matter Claims 7, 8, and 10, as to which the jury has made plainly supportable findings of no infringement).

Granting a judgment notwithstanding the jury's findings of infringement of Claims 1 and 2 is, of course, holding their findings impermissible. I emphasize, however, that I am not critical of the jury's performance of its function in this case. Indeed, the jury was attentive and in my view serious and thoughtful in their consideration of the evidence. Had I instructed them fully, clearly, and correctly on the law applicable to claim construction as applied to the evidence in this case, the instructions would necessarily have made clear that they could not properly credit the principal arguments of plaintiffs, referred to in this Opinion and rejected as impermissible. Though tentatively, at the time of submitting the case to the jury, holding the views I have now expressed in this Opinion, I instructed only in more general terms and held back from giving instructions that, though correct, would have been nearly equivalent to directing a verdict. Thus, though I concluded for reasons of judicial administration that this was the wiser course after the heavy investment of public and private resources in a lengthy trial before a jury, it is a course that runs the risk of conveying to the jury, by inference from the court's failure explicitly to reject key arguments made by counsel, the message that those arguments are legally permissible. Having taken that course and run that risk, the court must accept the responsibility for entering judgment notwithstanding the verdict, even though its doing so may quite properly be viewed at least as much as a correction of the court's own failure to grant a directed verdict as an order disregarding jury findings.

V.

Given the conclusion that none of the methods practiced or encouraged by defendants can be found to infringe the Damadian patent, I must, on motion for judgment notwithstanding the verdict, disregard the jury's answers to Questions 6 and 7 with respect to Claims 1 and 2 of the patent.

The jury's answers to Questions 6 and 7 in relation to patent Claims 7, 8, and 10 are supportable on other grounds as well as being compelled for the same reasons I have stated in relation to Claims 1 and 2.

Also, at the commencement of trial, plaintiffs waived all allegations of infringement of other claims of the patent.

For these reasons judgment will be entered for defendants declaring that they have neither infringed nor induced infringement of Patent No. 3,789,932.

VI.

The submissions of the parties have not addressed questions as to what judgment should be entered as to issues of invalidity, in view of the determinations of no infringement. *See generally Sinclair & Carroll, Inc.* v. *Interchemical Corp.*, 325 U.S. 327 (1945) and its progeny, including *Nestier Corp.* v. *Menasha Corp.-Lewisystems Div.*, 739 F. 2d 1576 (Fed. Cir. 1984). In these circumstances, the rulings that I express in the remainder of this Opinion are tentative rulings, subject to reconsideration after counsel have had an opportunity, in conference with the court, to propose any modifications they wish to suggest.

The defenses of invalidity submitted to the jury in Question 1-5 having been fully tried, I conclude that it is appropriate to enter judgment as to these defenses upon the verdict unless the verdict is insupportable in some respect.

The jury found patent Claims 7, 8, and 10 invalid because no claimed result was attainable by the steps stated in each claim (Question 2) and because each claim failed to particularly point out and distinctly claim the subject matter of the alleged invention (Question 3 (b)).

The jury's findings that the claimed results were not attainable by the steps stated in Claims 7, 8, and 10 were supported by evidence that the laws of physics teach that it is impossible to shape a magnetic field so that it has a maximum along the axis of the electromagnet that generates the field, as described in column 8 of the patent application, and so that along the axis it has a locus of equal field strength, as stated in Claim 7. Even though plaintiffs offered conflicting expert testimony, the jury could permissibly credit the evidence on these matters presented by defendants.

The jury's findings that each of Claims 7, 8, and 10 failed to particularly point out and distinctly claim the subject matter of the alleged invention were supported both by expert evidence to this effect offered by defendants and by the circumstance, as the jury may permissibly have assessed the evidence, that even at trial plaintiffs never explained, either in evidence or in argument, precisely what was the subject matter of Claims 7, 8, and 10.

For these reasons, a judgment of invalidity of Claims 7, 8, and 10 of the patent must be entered upon the findings of the jury. In view of this determination, I need not address other defense contentions of invalidity of those patent claims on other grounds, as to which the jury found that the defense was not proved by clear and convincing evidence.

Remaining for consideration are the defense contentions of invalidity of patent Claims 1 and 2. The jury found against all invalidity defenses as to these two claims. Taking into account the defense burden of proof by clear and convincing evidence, I conclude as to each of the defenses submitted in Questions 1-5 that the evidence supports the jury verdict that this burden was not met in relation to Claims 1 and 2.

The finding against defense contentions that the subject matter was a phenomenon of nature and was obvious are supported by evidence (a) that the patent claims concern a method for developing standard measurements of T_1 and T_2 for cancerous and non-cancerous tissues, (b) that these methods are not a natural phenomenon, though they do build upon the natural phenomenon of tissue quality that produces distinctive

NMR signals when excited in a certain way, and (c) that these methods of developing standard T_1 and T_2 values were not obvious to those skilled in the art of NMR spectrometry or any other art. As noted above in this Opinion, the evidence would not support a finding that the development of such standards for detecting cancer has yet been accomplished; nevertheless, the evidence supports the jury finding that defendants have not proved by clear and convincing evidence that the result cannot, in the future, be attained by the steps stated in Claims 1 and 2.

If Claims 1 and 2 were given the impermissible interpretation for which plaintiffs argued in their infringement contentions, a serious issue would be presented as to whether the court should hold that the evidence compels a finding that the specification of the patent fails to state with required clarity and particularity how to make and use the invention. But that impermissible reading of Claims 1 and 2 has been rejected. When one considers instead a permissible reading of the patent, the jury finding that the defense has failed to prove lack of clarity and particularity of the specification is supportable.

Also, at least in relation to a permissible reading of Claims 1 and 2, I conclude that there is support in the evidence for the jury finding that the defense has failed to prove that Dr. Damadian or his attorney failed to disclose to the Patent Office relevant information that they knew or should have known that a reasonable examiner would have considered important in allowing or rejecting the application.

I therefore conclude that judgment should be entered declaring that defendants have failed to establish invalidity of patent Claims 1 and 2 of Patent No. 3,789,932.

/s/ ROBERT E. KEETON
United States District Judge

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Appeal Nos. 86-1005, 86-1019

FONAR CORPORATION and DR. RAYMOND DAMADIAN,
Appellants/Cross-Appellees,

v.

JOHNSON & JOHNSON and TECHNICARE CORPORATION,
Appellees/Cross-Appellants.

JUDGMENT

ON APPEAL from the United States District Court for the District of Massachusetts in Case No. 82-2751-K.

This CAUSE having been heard and considered, it is ORDERED and ADJUDGED:

AFFIRMED IN PART, VACATED IN PART

ENTERED BY ORDER OF THE COURT

DATED JUNE 16, 1987

/s/ FRANCIS X. GINDHART
Francis S. Gindhart,
Clerk

ISSUED AS A MANDATE: AUGUST 27, 1987

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

Appeal Nos. 86-1005, 86-1019

FONAR CORPORATION and DR. RAYMOND DAMADIAN,
Appellants/Cross-Appellees,

v.

JOHNSON & JOHNSON and TECHNICARE CORPORATION,
Appellees/Cross-Appellants.

Before

MARKEY, *Chief Judge*,
RICH and ARCHER, *Circuit Judges.*

ORDER

A petition for rehearing having been filed in this case by appellant, Dr. Raymond Damadian,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is denied.

FOR THE COURT

/s/ FRANCIS X. GINDHART
Francis X. Gindhart, Clerk

Date 8/20/87

cc: Mr. John R. Nelson
Dr. Raymond Damadian
Mr. Stephen B. Judlowe

UNITED STATES COURT OF APPEALS
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FONAR CORPORATION and DR. RAYMOND DAMADIAN,
Appellants/Cross-Appellees,

v.

JOHNSON & JOHNSON and TECHNICARE CORPORATION,
Appellees/Cross-Appellants.

Before

MARKEY, *Chief Judge,*
RICH and ARCHER, *Circuit Judges.*

ORDER

A petition for rehearing having been filed in this case by appellant, Fonar Corporation,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is denied.

FOR THE COURT

/s/ FRANCIS X. GINDHART
Francis X. Gindhart, Clerk

Date 8/20/87

cc: Mr. John R. Nelson
Dr. Raymond Damadian
Mr. Stephen B. Judlowe